the true life-history, as traced by the author, was given. Some notes on observations on the Tenby wheat midge, *Clinodiplosis equestris*, followed.

PARIS.

Academy of Sciences, January 5.—M. Émile Picard in the chair.—Address by the president.—A. **Lacroix**: The existence on the Ivory Coast of a petrographic series comparable with that of charnockite. All these rocks constitute a continuous and comprehensive series passing from granite to a hypersthene almost solely formed of quartz and felspars. The series is interesting as being very rare, and forms a parallel with that of the alkaline and alkalino-calcic rocks.—G. **Koenigs**: Conjugate curves in the most general relative displacement of two bodies.—A. **Demoulin**: The transformation of Ribaucour.—G. **Tsitzéica**: A problem on triple orthogonal systems.—Arnaud **Denjoy**: Uniform analytical functions with discontinuous non-isolated singularities.—Camille **Hautier**: The adiabatic compression of air applied to a vehicle moved by an explosion motor in order to replace mechanical transmission.—A. **de Gramont**: The re-partition of the ultimate rays in the spectrum of different regions in the sun.—E. **Voisenet**: The production of small quantities of formaldehyde in the oxidation of ethyl alcohol by chemical, physical, or biological means. Formaldehyde is constantly formed in the oxidation of ethyl alcohol, free from all trace of methyl alcohol.—E. **de Stoecklin**: A new method allowing of the liberation of traces of alcohols.—L. **Margaillan**: The separation of saccharose and lactose by the "bulgare" ferment.—Pierre **Berthault**: The wild types among cultivated potatoes.—Th. **Mamelle**: The use of potassium cyanide as a subterranean insecticide. This salt injected in aqueous solution in the soil is decomposed by the acidity of the latter, the hydrocyanic acid gas thus permeating the whole.—Mdlle. P. **Cernovodeanu** and Victor **Henri**: A study of the action of ultra-violet rays upon microbes.—C. **Levaditi** and R. **Landsteiner**: Experimental infantile paralysis.—Jean **Boussac**: The nummulites of the zone of the flysch at the west and south-west of the Mercantour.—Héribaud **Joseph**: Investigations on the diatoms of the travertines deposited by the mineral waters of Sainte Marguerite (Puy de Dôme).—E. **Péroux**: The boring of the artesian well of the Maisons-Laffitte.

NEW SOUTH WALES.

Linnean Society, November 24, 1909.—Mr. C. Hedley, president, in the chair.—Dr. H. I. **Jensen**: The variable character of the vegetation on basalt soils. The different types of basaltic country in eastern Australia, and the factors which control the vegetation thereof, may be briefly summarised as:—(1) The tropical or subtropical, coastal basalt scrubs (jungle), with a high rainfall; the soil is very rich, and has a high water-retaining power but low porosity. (2) The extra-tropical, coastal basaltic ranges of southern New South Wales, with a colder climate and a lower rainfall; rapid corrosion and erosion, unhindered by dense vegetation, have given rise to steep slopes, and these have an excellent natural drainage and a stony soil. (3) The almost treeless basaltic plains west of the Great Dividing Range, the dearth of vegetation being due to a low and uncertain rainfall, and sometimes to a cold climate as well. (4) The isolated basaltic knolls of the western interior, usually stony and bare of soil, their barrenness being due to two causes; the basalt is such a compact, homogeneous, and even-grained rock, and the climate so arid, that decomposition is extremely slow, and as the minerals all decompose with about equal readiness, the soil formed is very finely divided, and is removed by the wind practically as fast as it is formed. (5) The basaltic bogs of plains and tablelands, with a water-logged soil due to inefficient drainage, and a soil-water charged with deleterious salts. Hence it will be seen that the defect of basaltic soils is never want of plant-food. The most serious drawbacks are high water-capacity, which causes the asphyxiation of plants in wet weather, and low capillarity power, which impedes a renewal of soil-moisture in droughty seasons.—Dr. W. G. **Woolnough**: The geology of the Tallong-Marulan area, N.S.W. This area has already formed the subject of a communication to the society by Mr. T. G. Taylor and the author. In that paper the physiography was dealt with, and a fine case of river-capture on a large scale described. The district is very remarkable for the great variety of its geological formations. Ordovician, Silurian, Permo-Carboniferous, and Tertiary fossiliferous strata are developed, while eruptive rocks are represented by a great boss of grano-diorite, grading into granite-porphyry and dacite, intersected by complementary dykes of aplitic and lamprophyric character, and by extensive basalts and basalt tuffs. The Ordovician rocks are the nearest to Sydney at present known, and contain abundant beautifully preserved graptolites, series of which have been exhibited at the meetings of the society. The Silurian rocks include two thick belts of fossiliferous limestone in which extensive caves occur. The Permo-Carboniferous rocks are somewhat abnormal in character, lying as they do at the extreme south-western corner of the basin. The formation consists chiefly of coarse conglomerates and breccias. A seam of inferior coal is developed. The grano-diorite mass presents some very interesting problems in magmatic intrusion. It is suggested that it is a laccolitic mass only just laid bare by denudation. The very important problems of magmatic differentiation presented by this mass are not dealt with in this paper. Extensive contact-metamorphism is met with in the district, and a preliminary description of this is given.—E. J. **Goddard**: Contribution to our knowledge of Australian Hirudinea, part iv., with a note on a parasitic endoproctous polyzoon. The paper comprises a detailed account of a leech found in the Brisbane River, which is regarded as indistinguishable from the Jamaican *Pontobdella macrothela*, Schmarda, and descriptions of a species of Pontobdella from the Hawkesbury Estuary, and one of Geobdella from British New Guinea. Certain incomplete but abundant structures adherent to examples of the second of these are pronounced to be the stalks of an endoproctous polyzoon, possibly allied to Loxosoma. Similar structures were erroneously supposed to be the spermatophores of a leech by Macdonald.—L. A. **Cotton**: The tin deposits of New England, N.S.W., part i., the Elsmore-Tingha district. There are three geological units within the tinfield:—(1) a series of slates and claystones; (2) a series of granites; (3) a series of basalts; while a fourth flanks its eastern side. The slates are Palæozoic, and are probably of Silurian age. The basalts are the youngest of the formations, and their age has been determined as Tertiary. The granites are intrusive into the Palæozoic slates, and their age has been provisionally stated as Permian. There are two chief granite types:—(1) the "acid granite" of Mr. E. C. Andrews, which is chiefly a quartz-felspar rock; (2) an older and more basic rock, the Tingha granite. The tin-ore deposits have been found always closely associated with the "acid granite," though post-dating the solidification of that rock. On examining the fracture-systems of Elsmore, Emmaville, and Tingha, it was concluded that the force causing these was a thrust from the east, or a torsional stress having the axis of torsion approximately east and west. It was noted that the system of fractures corresponds closely with the general trend of the tin-bearing belt, both being best developed in a direction about N.E. by E. The tin-ore deposits are discussed under several heads, the chief among them being (*a*) the quartz-quartzose type; (*b*) the quartz-felspar type; (*c*) the pipes; (*d*) the chlorite deposits.

DIARY OF SOCIETIES.

THURSDAY, JANUARY 13.

ROYAL SOCIETY, at 4.30.—On the Atomic Weight of Strontium: Sir Edward Thorpe, C.B., F.R.S., and A. G. Francis.—On the Approximate Arithmetical Solution by Finite Differences of Physical Problems involving Differential Equations, with an Application to the Stresses in a Masonry Dam: L. F. Richardson.—On a Method of Determining the Viscosity of Gases, especially those Available only in Small Quantities: A. O. Rankine.—Recombination of Ions at Different Temperatures: Dr. P. Phillips.—On the Electricity of Rain and Snow: Dr. G. C. Simpson.—On the Polarisation of X-Rays compared with their Power of Exciting High Velocity Kathode Rays: L. Vegard.

MATHEMATICAL SOCIETY, at 5.30.—The Transformations of Coordinates which can be used to transform One Physical Problem into Another:

© 1910 Nature Publishing Group

H. Bateman.—On Homogeneous Oscillation: Dr. W. H. Young.—On the Determination of a Semi-continuous Function from a Countable Set of Values: Dr. W. H. and Mrs. Young.—Note on a Former Paper on the Theory of Divergent Series: G. H. Hardy.—On the Expression of a Certain Function by Means of a Series of Polynomials: Dr. H. F. Baker.—On the Theory of the Cubic Surface: Dr. H. F. Baker.—The Harmonic Functions associated with the Parabolic Cylinder: G. N. Watson.—Note on the Theory of Sets in Probabilities: Dr. H. de S. Pittard.

Institution of Electrical Engineers, at 8.—Lord Kelvin's Work in Telegraphy and Navigation (*Second Kelvin Lecture*): Prof. J. A. Ewing, C.B., F.R.S.

FRIDAY, January 14.

Malacological Society, at 8.—Note on *Helix desertorum*: Mrs. G. B. Longstaff.—Description of *Thersites* (*Glyptorhagada*) *Hillieri*, n.sp., from Central South Australia: E. A. Smith.—Note on *Athoracophorus Schauinslandi*: Henry Suter.—The Ampullaridæ of the Eastern Hemisphere. Description of New Species of Donovania, Scutellina, Fissurella, and Pisania: G. B. Sowerby.—Marine Mollusca from the Kermadec Islands. Notes on Polyplacophora, chiefly Australasian: T. E. Iredale.—Helicoids from New Guinea and Description of a New Species of Papuina: G. K. Gude.

Royal Astronomical Society, at 5.—The Moon in Ultra-violet Light: Spectro-selenography: R. W. Wood.—Radial Movement in Sun-spots: *Second paper*: J. Evershed.—On Mr. Fotheringham's Criticisms, *Monthly Notices*, Vol. lxix., pp. 669–73: E. Nevill.—A Last Word on the Correlation of Variable Stars: Karl Pearson.—The Principal Formulæ of Interpolation and Mechanical Differentiation and Integration: H. C. Plummer.—Note on some Sun-spots visible in September, 1909: Col. E. E. Markwick.—*Probable Papers*: Observations of Occultations of Stars by the Moon made at the Royal Observatory, Greenwich, in the year 1909: Astronomer Royal.—Observations of Minor Planets from Photographs taken with the 30-inch Reflector of the Thompson Equatorial at the Royal Observatory, Greenwich, during the year 1909: Astronomer Royal.

Institution of Civil Engineers, at 8.—Some Uses of Mechanical Power in Engineering Construction: H. F. Donaldson, C.B.

MONDAY, January 17.

Society of Chemical Industry, at 8.—The Direct Separation of Emulsions by Filtration and Ultra-Filtration: E. Hatschek.—Significance of the Abel Heat Test of Gun Cotton and Nitro-glycerine: R. Robertson and B. J. Smart.—Note on the Estimation of Iron in Ferric Solution: A. F. Joseph.

Royal Society of Arts, at 8.—Textile Ornamentation: Alan S. Cole, C.B.

TUESDAY, January 18.

Royal Institution, at 3.—The Cultivation of the Sea: Prof. W. A. Herdman, F.R.S.

Institute of Metals, at 10.30 a.m.—Address by the President, Sir Gerald Muntz, Bart.

Zoological Society, at 8.30.—Report on Pathological Observations at the Society's Gardens during 1909: Dr. H. G. Plimmer.—Zoological Collections from Northern Rhodesia and Adjacent Territories: *Lepidoptera Rhopalocera*: S. A. Neave.—On the Marine Fishes and Invertebrates of St. Helena: J. T. Cunningham.—Notes on the Hydroids and Nudibranchs of Bermuda: W. M. Smallwood.—On New or Rare Crustacea of the Order Cumacea from the Collection of the Copenhagen Museum. Part II., The Families Nannastacidæ and Diastylidæ: Dr. W. T. Calman.

Royal Statistical Society, at 5.

Institution of Civil Engineers, at 8.—*Further Discussion*: The Design of Rolling Stock for Smooth-rail Working on Heavy Gradients: F. W. Bach.—*Probable Paper*: The Reconstruction of the Tyne North Pier: I. C. Barling.

Faraday Society, at 8.—The Conditions which Determine the Composition of Electro-deposited Alloys. Part II., Silver-copper: S. Field.—Studies in the Electro-deposition of Metals: Dr. F. Mollwo Perkin and W. E. Hughes.—The Compressibilities of Helium and Neon: F. P. Burt.—Gas-washing Bottles with very Slight Resistance to the Passage of a Gas: Dr. A. C. Cumming.

WEDNESDAY, January 19.

Institute of Metals, at 10.30 a.m.—*Probable Papers*: The Use of Carbonaceous Filters in the Smelting of Zinc, as employed in the Hopkins Fumeless Zinc Process: C. O. Bannister.—The Properties and Constitution of Copper Arsenic Alloys: G. D. Bengough.—The Failure in Practice of Non-ferrous Metals and Alloys, with Particular Reference to Brass Loco-tubes: T. Vaughan Hughes.—A Contribution to the Study of Phosphor Bronze: O. F. Hudson and E. F. Law.—Notes on a Suggested Record of Analyses: C. A. Klein.—The Analysis of Aluminium and its Alloys: Dr. R. Seligman and F. J. Willott.—The Assay of Industrial Gold Alloys: E. A. Smith.

Royal Society of Arts, at 8.—The Japan-British Exhibition, 1910: Count Hirokichi Mutsu.

Royal Microscopical Society, at 8.—President's Address: Sir E. Ray Lankester, K.C.B., F.R.S.

Entomological Society, at 8.—Annual Meeting.

Royal Meteorological Society, at 7.30, Ordinary Meeting.—At 7.45, Annual General Meeting.—Presentation of the Symons' Gold Medal to Dr. W. N. Shaw, F.R.S.—Presidential Address: Some Relations of Meteorology with Agriculture: H. Mellish.

THURSDAY, January 20.

Royal Society, at 4.30.—*Probable Papers*: Further Observations on the Pathology of Gastric Ulcer (Progress Report): Dr. C. Bolton.—(1) The Velocity of Reaction in the "Absorption" of Specific Agglutinins by Bacteria, and in the "Adsorption" of Agglutinins, Trypsins, and Sulphuric Acid by Animal Charcoal; (2) On the Absorption of Agglutinin by Bacteria, and the Application of Physico-chemical Laws thereto: Georges Dreyer and J. Sholto Douglas.—Observations on the Rate of Action of Drugs (Alcohol, Chloroform, Quinine, Aconitine) upon Muscle as a Function of Temperature: Dr. V. H. Veley, F.R.S., and Dr. A. D. Waller, F.R.S.—An Examination of the Physical and Physiological Properties of Tetrachlorethane and Trichlorethylene: Dr. V. H. Veley, F.R.S.—The Action of Antimony Compounds in Trypanosomiasis in Rats: J. D. Thomson and Prof. A. R. Cushny, F.R.S.—"Amakebe,' a Disease of Calves in Uganda: Colonel Sir David Bruce, C.B., F.R.S., Captains A. E. Hamerton, H. R. Bateman, and F. P. Mackie.

Royal Institution, at 3.—Assyriology: Rev. C. H. W. Johns.

Linnean Society, at 8.—Discussion on the Origin of Vertebrates: Dr. Gaskell, Dr. Gadow, Mr. Goodrich, Prof. Starling, Prof. MacBride, Dr. Smith Woodward, Prof. Dendy.

Institution of Mining and Metallurgy, at 8.

FRIDAY, January 21.

Royal Institution, at 9.—Light Reactions at Low Temperatures: Sir James Dewar, F.R.S.

Institution of Mechanical Engineers, at 8.—Ninth Report to the Alloys Research Committee: On the Properties of some Alloys of Copper, Aluminium, and Manganese (with an Appendix on the Corrosion of Alloys of Copper and Aluminium when exposed to the Sea): Dr. W. Rosenhain and F. C. A. H. Lantsberry.

Physical Society, at 5.—Saturation Specific Heats, &c., with van der Waals' and Clausius' Characteristics: R. E. Baynes.—The Polarisation of Dielectrics in a Steady Field of Force: Prof. W. M. Thornton.—On the Use of Mutual Inductometers: Albert Campbell.

CONTENTS.

PAGE

A Japanese Priest in Tibet. By Lt.-Col. L. A. Waddell . . . 301
Criticism in Geology. By Prof. Grenville A. J. Cole 302
Chemical Philosophy. By H. M. D. . . . 303
Oceanography in the North Atlantic . . . 304
The Case for Eugenics. By E. H. J. S. . . . 305
Indian Woods and their Uses . . . 305

Our Book Shelf:—

"A Survey and Record of Woolwich and West Kent."—**W. G. F.** . . . 306
Boldingh: "The Flora of the Dutch West Indian Islands" . . . 307
Granger: "Weather Forecasting by Simple Methods" 307

Letters to the Editor:—

The Invention of the Slide Rule.—**Dr. Alexander Russell** . . . 307
The Tercentenary of the Telescope.—**J. A. Hardcastle** 307
Cross-fertilisation of Sweet-peas.—**Dr. Francis Darwin, F.R.S.; The Original "π"** . . . 308
A Hardy Goldfish.—**G. C. Constable** . . . 308
Recent Work in the Telegraphic Transmission of Pictures. (*Illustrated.*) **By T. Thorne-Baker** . . . 309
Sir Charles Wilson. (*Illustrated.*) **By E. H. H.** . . 311
Technological Science in Germany. By C. Simmonds . . . 313
Plagues of Locusts in South Africa. By G. H. C. 314
Notes . . . 315

Our Astronomical Column:—

Halley's Comet, 1909*c*. (*Illustrated.*) . . . 319
The Total Solar Eclipse of May 8 . . . 320
Comets due to Return this Year . . . 320
Oppositions of Mars, and Simultaneous Disappearances of Jupiter's Satellites, 1800–1999 . . . 320
A Brilliant Fireball . . . 320
Ancient Ideas of the Physical World . . . 320
Minor Planets . . . 320
Marine Biology at Port Erin. (*Illustrated.*) **By W. J. Dakin** . . . 321
Prizes Proposed by the Paris Academy of Sciences for 1911 . . . 322
London County Council Conference of Teachers. By G. F. D. . . . 323
Electric Valves . . . 324
Education during Adolescence. By Prof. M. E. Sadler . . . 32
University and Educational Intelligence . . . 327
Societies and Academies . . . 32
Diary of Societies . . . 329

© 1910 Nature Publishing Group